

# Rx technology

Introducing a revolutionary new modular  
rack mount test and measurement solution



HDMI/SDI 1920 x 1080



## A new breed of T&M

Built upon leading edge technologies, the new PHABRIX Rx rack mount range of test and measurement instruments are in a class of their own.

From the sleek finely crafted engineered aluminium housing to the clarity and ergonomics of its focussed toolset, the Rx range is set to redefine T&M.

## The concept

Designed from the onset to enable broadcast engineers to fully customise their needs, Rx technology can be configured to satisfy a range of market sectors.

- Broadcast manufacturing
- OB facilities, flyaways and trucks
- Camera shading
- Production monitoring
- Control room
- Transmission remote control
- Editing/Colour correction
- 3D application
- Telcos

As budgets continue to be squeezed in broadcast the Rx has been designed as a cost effective investment for test and measurement with the quality and reliability established by the PHABRIX brand.

The Rx range allows a flexible approach to configuring test and measurement on a new technological platform designed for longevity. The innovation designed into Rx technology allows each Rx product to benefit from developments as they arise.

## Modular design

Modular means choice and with that choice is the ability to create the solution that matches each individual broadcast environment requirement.

Adding modules is like adding an independent new instrument. There is no 'overhead' demand on the platform, each module has its own dedicated FPGA allowing independence of function within a connected structure.

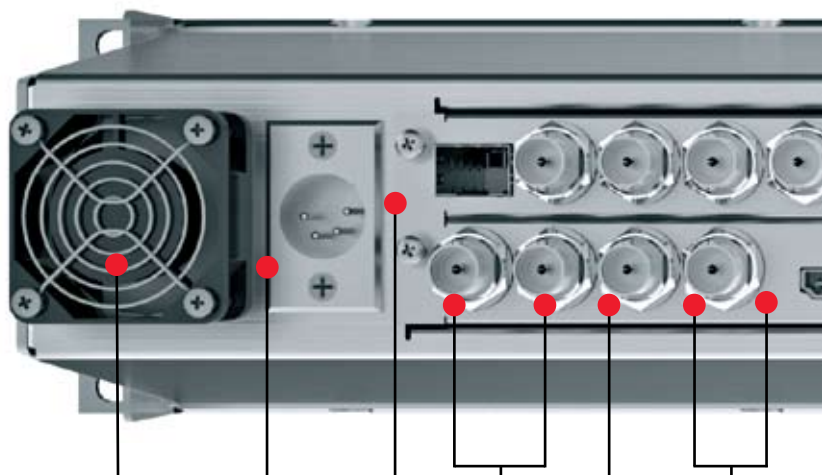
Each module is assigned a software identity when added to the system to allow upgrades throughout each connected instrument.



Rx2000 with the processor board and single analyzer module fitted



Stereo speakers 4W  
Volume control  
USB 2.0  
Audio Jack  
Video confidence



Temperature controlled fan  
XLR power 9-17v DC  
Module Bay 1  
Ref loop through  
AES In  
SDI/HDMI instrument output 1920 x 1080

## The Platform

The Rx range uses a PHABRIX 'layering' module which sits at the heart of the system. Here signals from each independent instrument on board are processed to provide a variety of instrument displays. It also provides a simple line and pathological pattern generator as standard.



Rx 'processor board', the heart of the system

Unhindered by any processing restraints, the processor board provides an output display up to a staggering 1920 x 1080 pixels with perfect scaling via its HDMI or SDI output. In practice the Rx acts like a T&M multi-viewer providing scaled instruments from any selected video input, including optical.

The processor board also has provision for AES input. Bi/Tri level looping reference is provided as standard. A 'D' type 26 way connector allows GPI, LTC control and analogue audio.

Dual USB ports can be used for mouse and keyboard control.

TCP/IP Ethernet provides remote control access to the Rx range using any web browser. It is also the method for updating firmware and software via PHABRIX's dedicated server. Simply select and forget for effortless upgrades.



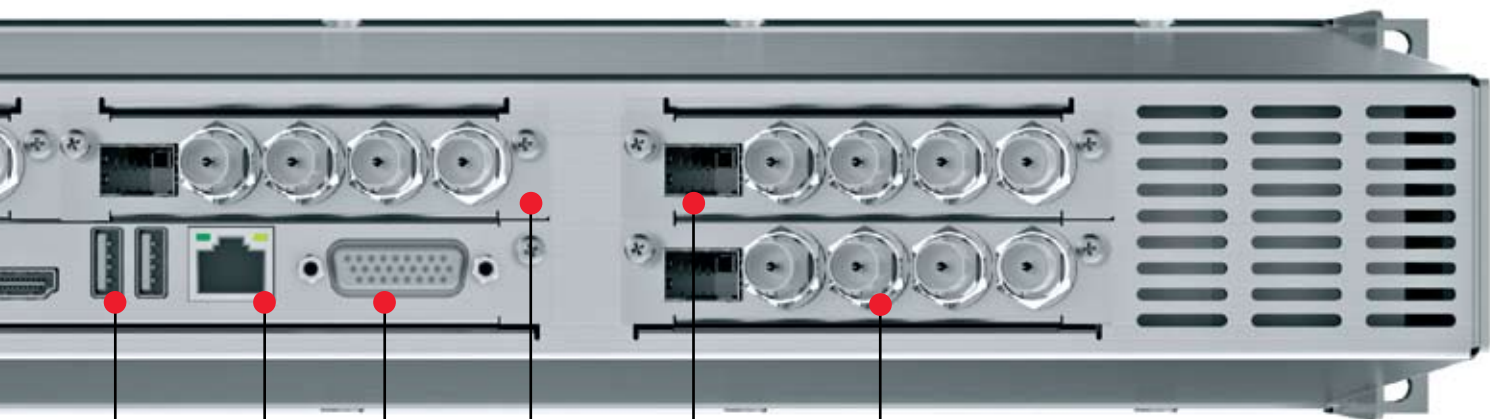
8 preset buttons

8 function buttons

Button/menu selection

Instrument display

Navigation



Dual USB  
Keyboard mouse

Ethernet TCP/IP control

D26 way GPI, LTC analogue audio

Module Bay 2

Module Bay 3

Module Bay 4

**Rx2000**

**Up to 8 simultaneous SDI channels**

Power is provided via a locking XLR input supporting an external 9-17V DC transformer. The system has an automatic 'last known configuration' fail safe should there be a power outage.

A super quiet fan assembly is temperature controlled to operate in extreme conditions thus reducing any distracting ambient fan noise.

Modules can be inserted into the rail guided bays with each of the Rx supporting 2 - 4 additional modules. Once inserted the Rx checks the identity of the module then seamlessly incorporates it into the system.

The Rx supports SD-SDI and HD-SDI signals as standard with an option to add 3G-SDI across the chassis via a simple code.

Over 350 different formats can be analyzed or generated by the Rx including Dual-Link and 3G level A and B.

## Modules



Each Rx can be enhanced with different modules. Optical support is provided with an optical cage for SFP insertion.

Modules include analysis with the addition of eye and jitter physical layer if required. Generator modules offer the full range of industry standard SMPTE signals complete with moving zone plate.

Audio support includes AES, Dolby E, D, D+ and Pulse. Modules are constantly under development for this new platform so it is wise to check with your distributor or PHABRIX directly for the most recent developments.

## Operating system

The Rx uses ultra reliable Linux as its operating system providing a robust and stable core. This dedicated solution provides confidence that the Rx will always be available throughout its 24/7 operation.

## Warranty

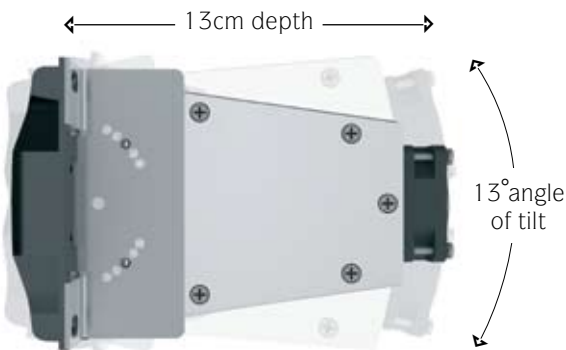
The Rx range benefits from a 2 year warranty including telephone and email support. Each Rx leaves our UK factory with its own unique list of quality controlled settings which are recorded by our manufacturing department. Should the Rx require calibration, these settings are compared with its pre-calibration state to ensure consistency and traceability.

Calibration services are available throughout the PHABRIX network of distributors. [www.phabrix.com](http://www.phabrix.com)

## PHABRIX Rx2000 dual screen

The 'top of the range' Rx2000 with 2 in-built screens along with HDMI/SDI output make this an ideal instrument for outside broadcast facilities and engineering bays. Confidence is assured with both video screen and instrumentation available at point of source and MCR with a simple touch of a button control. Video and audio sources are easily selected using the input button control. The focussed ergonomics of the Rx mean instruments are never more than two button presses from top level to instrument parameter control.

Clever 'tilt-in-bay' engineering allows the Rx2000 to be seen at various eye levels. The Rx2000 benefits from an angled slim profile of only 13cm depth. As with all of the Rx range, each instrument is very lightweight and benefits from very low power consumption.



Unique 'tilt-in-bay' mechanism

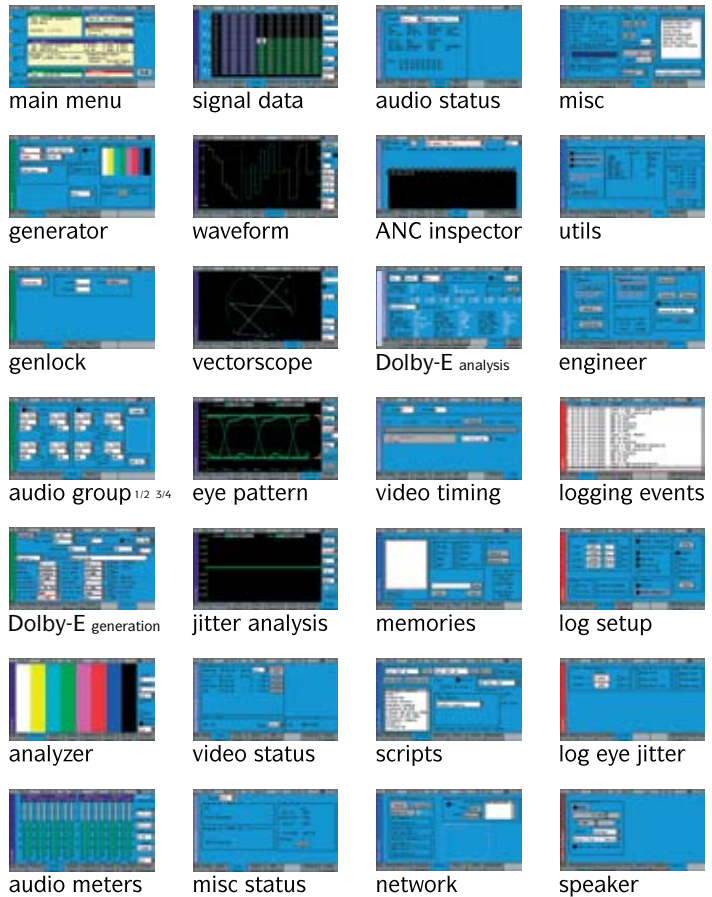


The Rx2000 can take up to four modules offering 8 simultaneous SDI channels. Optical is supported via SFP's which can be inserted into the cage built into each module providing 8 optical channel support if required.

With a choice of video and audio modules within its slim 2U profile, the Rx2000 can be found in a range of broadcast environments.

Modules are constantly being added to the range with both video and audio support. Physical layer measurement is available as a single eye or dual eye analyzer module.

The Rx2000 supports 16 channels of embedded audio as standard and comes complete with full range stereo speakers. Additionally there is a standard audio jack provided on the front of the instrument for earphones. A front mounted USB port is available for data grab and off-line parameter saves.

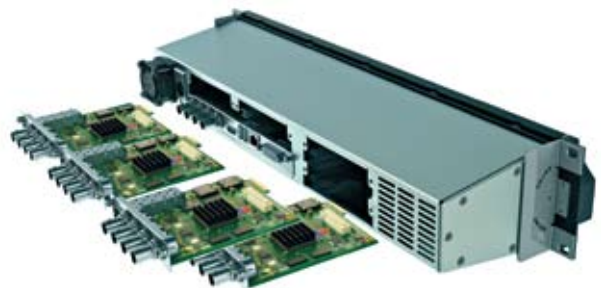


Rx 2000 built-in screen displays offer a full range of test and measurement instrumentation

Instruments available via the in-built screens and HDMI/SDI output



The Rx2000 can be controlled from the dual display interface and buttons on the instrument itself or by attaching a keyboard and mouse via the USB 2.0 port to access the HDMI/SDI output.



Up to 4 modules can be inserted into the Rx2000 providing 8 simultaneous SDI channels. Options are applied to the chassis for exceptional savings per module.



1920 x 1080 HDMI/SDI output

Rx 500 up to 4 simultaneous SDI channels



Rx 1000 up to 8 simultaneous SDI channels



## PHABRIX Rasterizers

Boasting the lightest, ultra-slim profile available on the market today, PHABRIX's Rx rack mount rasterizers offer a new modular answer to broadcast test and measurement.

The Rx rasterizers are unique in having an in-built OLED display allowing operators to see and select up to 99 presets.

Template 'presets' can be built easily on screen in real-time if required using the mouse and keyboard control.

All instruments are viewed via the HDMI/SDI output to a separate monitor at 1920 x 1080 providing a multi-viewer of instruments - each simultaneously updated in real-time.

## PHABRIX Rx500

For such a small profile the 1U half rack Rx500 has plenty of power. Boasting the same toolset throughout the range, the Rx500 is a perfect solution where space is minimal. This small power house can be fitted with physical layer test and measurement modules providing 4 simultaneous SDI channels with optical support. An internal whisper quiet fan and clever extruded airflow profiles make this instrument cool in so many ways.

## PHABRIX Rx1000

The Rx1000 offers PHABRIX T&M instrumentation in a 19" (482 mm) width 1U rasterizer format. Configured with a range of functions using its modular structure, the Rx1000 makes full use of its unique HDMI/SDI output with support for up to 4 modules.

As with all of the instruments provided in the Rx range, the more modules inserted into the chassis, the more cost effective this solution becomes for both audio and video test and measurement. Speakers can be added for monitoring if required.

Preset	Input	IP Address
Volume:-30dB	Input Bank 1	
In1	In2	In3
In4	In5	In6

Input selection - up to 8 SDI/8 optical

SDI	HDMI	Preset
Volume:-30dB	HDMI	1080i50
720p	1080i	1080p

HDMI standard selection

IP Address	Gateway	NET Mask
Volume:-30dB	192.165.0.201	
-1	+1	-10
+10	-100	+100

Gateway setup

Input	IP Address	Gateway
Volume:-30dB	192.165.0.200	
-1	+1	-10
+10	-100	+100

IP Address setup

Gateway	NET Mask	DNS Server
Volume:-30dB	255.255.255.255	
-1	+1	-10
+10	-100	+100

NET Mask control



The unique PHABRIX OLED rasterizer display provides a clear user interface

## Innovation in control

The Rx1000 and the Rx500 rasterizers have a unique built-in OLED display which sets them apart in the broadcast industry. Gone are the days when a rasterizer was covered in a multitude of small buttons, now the interface is simplified allowing operators the control to set up the PHABRIX instrument without the need for an external display. This facility is particularly useful for system integrators who need to prove the equipment before complex install. Buttons are further illuminated in the rasterizer range for ease of use.

Once the presets have been defined, the engineer or studio operator can simply press the preset button to scroll through up to 99 preset choices which will then be displayed as user defined multiple instruments via the HDMI/SDI 1920 x 1080 output. Presets can be edited at any time and saved as 'templates' into the system. Instruments can be shown with engineering parameter input on the HDMI/SDI output if required or toggled off for a simplified view. Having simultaneous refresh across all instruments with no loss of function or functionality proves the technological achievement manifest in the Rx platform.

## Remote control as standard

Acknowledged as controlled via one of the industry's easiest to use interfaces, Rx instruments have been designed to fully implement the PHABRIX GUI.

Engineers can simply, and importantly swiftly control their T&M instrument either through clever presets or user selectable configuration.

Whether using the dual integral screens of the Rx2000 and/or the HDMI/SDI output available across the range, each instrument is never more than a two button press away from the main menu.



Each instrument can be controlled or remotely configured using a standard web browser

In addition the Rx platform can be further enhanced with a range of software options available for the platform. A simple software code will unlock these at any time.

The Rx can be controlled remotely using any Ethernet connection along with any standard web browser. The simple user interface is mirrored on screen to allow ease of use.

The advanced toolset available on the Rx range provides access to a range of functions both video, audio and increasingly data based. As each new module is attached, the system will automatically seek its unique identity and make the changes to access new features within the menu structure.



Screen grabs and reports can be downloaded directly from the web browser.



Print reports

At any time the user can choose to save screen views on the internal disk be it video or instrument for inclusion in a facility report. These can be downloaded when required.

## Rx technology applications

### Outside broadcast facilities

PHABRIX's Rx technology provides a choice of instruments from 1U to 2U. The 2U Rx2000 has a unique 'tilt-in-bay' mechanism to position the unit precisely to obtain the best viewing angle. Its slim 13cm depth, low weight and low power consumption are unique features of the Rx range and make it the ideal choice in this space conscious broadcast environment. Rx instruments can be configured with 2 to 4 modules to include a range of audio and video features. From tail gate to interior control room, the Rx offers the perfect fit.

In addition an automated print report feature is provided to generate a sophisticated HTML report complete with a personalized company logo to make an engineer's life just a little bit easier.

### Broadcast manufacturers

The Rx offers exceptional 'in house' test and measurement value for broadcast manufacturers. Whether the convenience of the dual screen Rx2000 or the space conscious 1U Rx1000 and half rack Rx500 rack mounts rasterizers, each can be configured to meet your full test and measurement requirements. PHABRIX technology provides full access for automation. High level functionality such as physical layer analysis from SD-SDI, HD-SDI to 3G-SDI is available and with up to 8 simultaneous SDI T&M channels each Rx provides exceptional cost savings over traditional bench equipment.



PHABRIX Rx 2000 in the tail gate of an OB truck - feeds via HDMI/SDI to the control room inside the truck.

### Broadcast engineering bays

The Rx is set to redefine the layout used in traditional broadcast engineering bays. With its combined video and audio toolset, the Rx provides a single instrument solution. The Rx2000 provides direct video confidence on its integral dual display screens with combined instrument interaction. Integral full range stereo audio speakers provide on the spot monitoring. HDMI and SDI output of all instruments is now available throughout the broadcast infrastructure from engineering bay to central control room in one sophisticated single instrument built with the latest technology.



Up to 8 simultaneous SDI or Optical channels

## PHABRIX Rx RANGE AT A GLANCE

**Rx2000** dual screen + rasterizer - 2U 4 module slots - up to 8 simultaneous SDI channels



*Rx2000 example shown with 4 analyzer modules*

**Rx1000** rasterizer - 1U 4 module slots - up to 8 simultaneous SDI channels



*Rx1000 example shown with 1 analyzer module*

**Rx500** rasterizer - 1U half rack 2 module slots - up to 4 simultaneous SDI channels



*Rx500 example shown with 1 analyzer module*



*Rx500 with two analyzer boards*

*Extruded cool fan side profile*

### Chassis upgrades - cost effective savings on multi modules

Sharing the same technological platform across instruments has enabled PHABRIX to offer a unique combination of features and hardware solutions to fit both form factor requirements and budgets,

Modules can be added at any time ( *no order at time of purchase restrictions* ). Any investment made in an Rx instrument can be small with upgrades available later as additional modules are added within CAPEX restrictions.

One of the major advantages of investing in an Rx is that all option upgrades apply across the modules installed in the chassis. For example upgrading from the standard SD-SDI, HD-SDI toolset to 3G-SDI applies to all the modules installed in the chassis. Adding the advanced eye and jitter analysis option to the chassis automatically upgrades all the physical layer modules installed providing unmatched functionality per SDI input - the more modules installed the more cost effective the solution.

PHABRIX is constantly adding new modules to support the Rx range instruments so please consult your distributor for the most up to date details of both modules and software options available. Alternatively contact PHABRIX at [www.phabrix.com](http://www.phabrix.com)



*PHRXM-AA Analyzer module*



*PHRXM-AE Analyzer + physical layer module*

## Rx rack mount range



Description	Rx500	Rx1000	Rx2000
SD-SDI, HD-SDI as standard	•	•	•
Dual screen TFT 480x272 pixels			•
OLED display	•	•	
Integrated module slots	2	4	4
Generator included as standard	•	•	•
Processing all digital	•	•	•
Tilt mechanism			•
Internal stereo loudspeaker	Beeper	Option	•
HDMI output 1.2a up to 1920 x 1080 RGB 4:4:4 Type A receptacle. 4 x PCM stereo audio at 48 KHz	•	•	•
SDI output SD-SDI,HD-SDI,3G-SDI up to 1920 x 1080 BNC 75 Ohm	•	•	•
External reference/VITC Passive loop through BNC 75 Ohm compensated	•	•	•
LTC 26 pin high density 'D' Type socket	•	•	•
AES input AES 3-ID, SMPTE 276M-1995	•	•	•
GPI Interface 26 pin high density 'D' Type socket	•	•	•
Analogue audio output 26 pin high density 'D' Type socket	•	•	•
Optional 3G-SDI	•	•	•
Thumb and button control	•	•	•
Volume/gain control	•	•	•
Embedded Audio 16 channels displayed simultaneously	•	•	•
LTC/GPIO/Analogue audio 26 pin female D sub	•	•	•
Processor board included	•	•	•
Remote control included	•	•	•
Ethernet plus remote control via browser. RJ45 connector, 10/100 Base T	•	•	•
USB 2.0 host port type A socket + 2 rear ports	•	•	•
Headphone connector 6.3mm (1/4 inch) Stereo jack	•	•	•
FPGA firmware/software upgrade via TCP/IP Ethernet	•	•	•
Looping reference	•	•	•
Optical support	•	•	•
External temperature controlled fan		•	•
Internal temperature controlled fan	•		
Power consumption to 60 W max (variable on modules inserted)	16W	16W	16W
4 Pin XLR 12V +/- 5% AC Power adaptor (included)	•	•	•
Warranty (1 year standard increased to 2 years with registration)	•	•	•
Dimensions	21.5 x 44 x 13cm	48.2 x 44 x 13cm	48.2 x 88 x 13cm
Weight standard chassis	0.75 Kg	1.7 Kg	1.9 Kg

## Modules

Contact PHABRIX sales for the current list of available modules

## Software Options

Contact PHABRIX sales for the current list of available software options

*Whilst every effort is made to reproduce accurate information, we reserve the right to change specifications, equipment and availability without prior notice.*

*For the latest specification please contact [www.phabrix.com](http://www.phabrix.com)*

